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ABSTRACT

This document presents a discussion of several dependent variables related to the topic of student choice of subject matter within specified courses. The dependent variables discussed are: attitudes, personality, pacing, achievement, future choices, and varied instructional outputs. Personality has never been used as a dependent variable in any research and therefore is only suggested as a possibility for future research, as are the variables of future choices and instructional outputs. Achievement, as might be expected, is mixed with regard to experimental and control groups and no positive statement can be made either way. However, research has been conducted using student attitudes toward and student pacing of work. Student attitudes are more often positive and least often negative if the students are given choices of coursework. In experiments concerning pacing, it has been proven that students, given a certain amount of work to be completed in a specified amount of time, are able to pace themselves to complete that work. A list of references is included. (HS)

# POSSIBLE DEPENDENT VARIABLES IN STUDENT CHOICE RESEARCH

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Although it is evident that there has been little systematic investigation of the effects of student self-selection, several aspects of that topic appear to present interesting, important avenues for further investigation. The possible dependent variables I would like to suggest this afternoon include the following: attitudes, personality, pacing, achievement, future choices and varied instructional outputs.

Of the limited amount of work with student choice that has been done, the bulk of it seems to be in the area of attitude change. Illustrative of such studies are the data shown in figures one and two. These data are based on attitude questionnaire responses completed by students in four educational psychology classes, two of which were allowed to select all of their assignments from an array of about two hundred possibilities and the other two of which were given fixed assignments from the array, with no opportunity for self-selection. The data in Figure One are tallies made of the number of positive and negative comments made by students under each of these conditions on an anonymous sentence completion questionnaire. Chi squares between groups on responses to all four sentence completion items are significant at beyond the .01 level.

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Insert Figure One about here

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The data in Figure Two are summaries of responses of students in the same four classes described above to a machine scored,

multiple choice evaluation instrument commonly used at Purdue University Calumet Campus. The students are to rate the instructor on a scale of A-E ( A represents "excellent," E represents "very poor.") The nine items shown in Figure Two are a subset of the twenty-seven items on the questionnaire and are believed to be representative of responses to all the items. Though the student responses to the first three items, which relate to specific aspects of the instructor's behavior, are quite similar for students given choice and for students not given choice, the ratings differ dramatically on the other six items. Ratings by the students who were allowed to choose their work form a J-curve while ratings by students who were not permitted choices tended to approximate a normal distribution.

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Insert Figure Two about here

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These data are generally in keeping with the findings of others (Davis, 1971; Entin, 1970; Miller, 1970) who report that students who are given choices within a course rate the course, the instructor, and even the subject matter highly. A fruitful area for further investigation, however, would certainly be to discover whether opportunities to make choices within a course would actually result in increased approach tendencies toward the subject matter of that course after the course has been concluded.

Those student choice studies which have dealt with personality factors have usually held them to be the independent rather than the dependent variables. This appears to be unfortunate since the personality factors are probably more enduring elements of an individual's life than one, or even several, choices. The effects

of choices within courses on individual students' personalities, if known, could give teachers and professors substantive guidance on how to achieve the affective goals of their instruction.

Several recently developed instructional systems, for example Keller's (1968), permit the student to select his own work rate. A commonly heard retort to this procedure is that the students will simply set their pace at zero and never learn anything. Numerous users of Keller's P.S.I. system (P.S.I. Newsletter, 1971,1971, 1972) attest to the inaccuracy of that dire prediction. In a study of my own, students were given fourteen assignments for a fourteen week semester. The assignments were consecutive and each had to be done correctly before the next one would be accepted. No schedule was imposed on the students, however, it was suggested that they might find it convenient to do one assignment per week. Data on student performance on this task are summarized in Figure Three. Though there was considerable variability in work rate among students, the average performance closely approximated the suggested pace and no student failed to complete the work by the stated deadline. More interesting than continued debate over whether students will or will not properly manage their time when allowed to choose their work rate would be an examination of the effects of choice of work rate on subsequent self-pacing behavior. It seems possible that choice of work rate might result in greater efficiency in learning similar material in the future. Such a possibility appears worthy of investigation.

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Insert Figure Three about here

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Studies of the effects of student choice on achievement have met with varied results. Haigh and Schmidt (1956) found that though students in learner centered classes generally achieved less well than students in teacher centered classes, this difference disappeared when students were allowed to select which of the two types of classes they wished to take. Guetzkow, Kelly, and McKeachie (1954), however, found no differences in achievement between students who were given their choice of three different teaching methods and students who were randomly assigned to a teaching method. Studies like either of these should be interpreted with extreme caution when considering them as results of manipulation of the independent variable, a choice selection system. In such studies, the student was given only one choice and even that was given many months prior to the achievement assessment. Thus, what was initially a choice became a requirement on all but the first meeting of the course. If choice has important effects on student achievement, it may be necessary that the student's opportunity to make a choice be continually available to him. Promising studies such as Grubb's (1962) unspecified learner controlled statistics should be replicated with an eye toward establishing the generality of the effect across a variety of presentation media.

One area of student choice research which is, apparently, untapped is the effect of choice on future choosing. Though, as previously noted, most studies have not provided for enough choices to consider these possibilities, it is possible that the opportunity to choose information, media, etc. within a course would result in the students' building more effective learning strategies. The obvious value of the discovery of such a relationship, should it exist, might well make this a high priority problem

for further study.

A final set of dependent variables I would like to pose for consideration today may more properly fall within the domain of the social psychologist than the educational psychologist. They are a response to Holland's (1969) challenge that individualized instruction ought to mean something more than everyone learning the same material at his own pace. The prospect of varied instructional outputs is an appealing one on many grounds. It fits the democratic ideal of a pluralistic society. It follows the thinking of Darwin in that it provides for greater variability in the behavior of our species. It aims toward the humanistic goal that man be "master of his fate" and "captain of his soul" In the past, there has been little reason for concern about the uniformity of the products of instruction--the learners. The outcomes of instruction have often gone unspecified and much variability resulted from the simple inefficiency of the system to teach whatever it was supposed to teach to everyone who received the instruction. The new and more efficient instructional systems are then criticized because of their efficiency and the apparent uniformity of their products. There appears to be a need to investigate the long range social implications of student choice of what will be learned as well as whether student choice can serve as a mechanism for maintaining variable instructional outputs while continuing to provide efficient instruction.

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Figure 1

Achievement and Attitude Outcomes

| Class | Achievement test scores N | $\bar{X}$ | σ | Frequency of evaluative comments: instructor pos. | instructor neg. | subject matter pos. | subject matter neg. | other students pos. | other students neg. | course pos. | course neg. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | 33 | 69 | 11 | 42 | 0 | 36 | 0 | 23 | 10 | 43 | 2 |
| (2) | 36 | 71 | 10 | | | | | | | | |
| (1) | 13 | 57 | 10 | | | | | | | | |
| (2) | 16 | 58 | [illegible] | | | | | | | | |
| (3) | 29 | 73 | 11 | 36 | 11 | 26 | 11 | 20 | 24 | 25 | 12 |
| (4) | 28 | 64 | 8 | | | | | | | | |

Comments About Work Load

| Class | Amount of work in the class: more than usual | usual | less than usual | Value of work in the class: more than usual | usual | less than usual |
|---|---|---|---|---|---|---|
| (1) (2) | 35 | 9 | 1 | 41 | 6 | 0 |
| (3) (4) | 28 | 5 | 14 | 10 | 6 | 14 |

Figure 2

Student Responses to Modified Purdue

Rating Scale for Instruction (selected items)

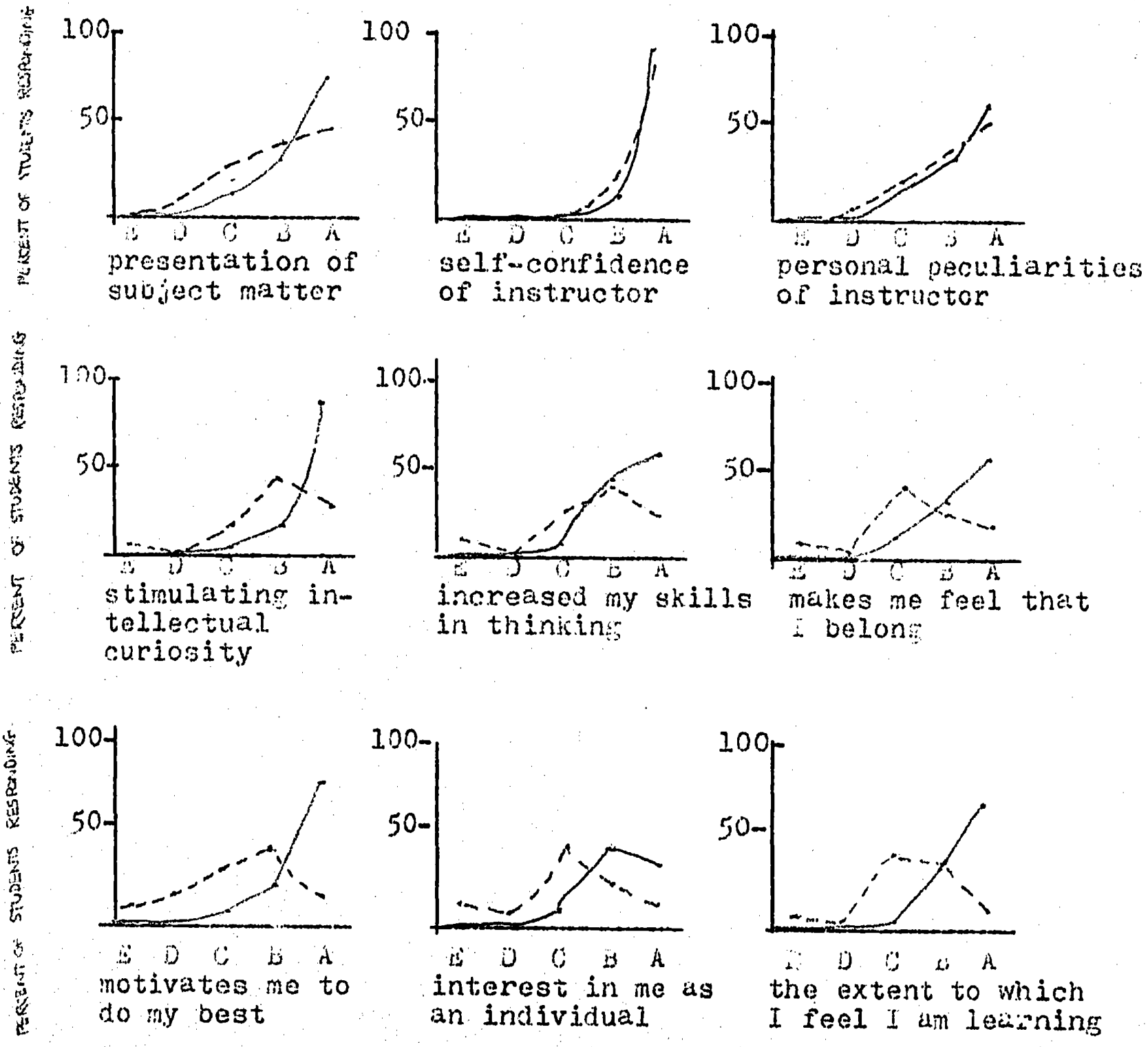

Figure 3

Conformity to Suggested Due Dates for Assignments